

REMARKS

Currently pending in the patent application at hand are Claims 1-14 of which Claims 1 and 8 are the base/independent claims. New Claims 15-18 are now presented as further explained below.

Claims 1-5 and 8-12 have been rejected under 35 U.S.C. § 102(e) as being anticipated by DeKimpe et al. (U.S. Patent No. 6,542,895).

By way of background for understanding the present invention, there are various schemas used to realize (aggregate and view data of) a hyper cube (also known as data cube or multidimensional cube). In one schema, the star schema, there is a Fact Table 201 (Fig. 2 of the instant application) which hierarchically represents data of a data cube. Each column D1,D2...Dn of the Fact Table 201 represents an attribute or dimension level. For each column D1...Dn of the Fact Table 201, there is a corresponding Dimension Table 202, 203, 204. Each Dimension Table 202, 203, 204 models one or more hierarchy structures (e.g., fine to coarse level) of subject data. Each column in a Dimension Table 202, 203, 204 represents a respective one of the hierarchy structures/levels (fine to coarse). See Specification page 6, line 13 through page 7, line 2 as originally filed.

To implement government requirements on protecting certain information and for data mining purposes, the present invention enables modification of hypercube realizations, such as star schema model structures or similar representations. In particular, the present invention enables rewriting of Dimension Tables 202, 203, 204 and generation of refinement paths to navigate through the Dimension and Fact Tables to extract relationships expressed in the hyper cube and to reveal multidimensional patterns (correlations in data) therein. See Specification page 12, lines 16-26.

With respect to the claim language of Claim 1, the example of Fig. 6 of the Specification is helpful. In the example of Fig. 6, Fact Table 602 has three dimension levels (columns), namely "Gender", "City" and "Count(I.D.)". A normal criterion of, for example, $\text{Count(I.D.)} > 5$ is satisfied by some but not all rows of Fact Table 602 (i.e., all but the first row). That is, some but not all dimension level combinations (reading across the columns, i.e. dimension levels of Gender and City, in a row) have Count(I.D.) greater than 5. The present invention provides means for editing Fact Table 602 and its corresponding Dimension Tables 603, 604 (the

"dimension structure of the data cube" in Claim 1 terms) so that the normal criterion (Count(I.D.) > than 5) is satisfied by at least one more row ("...one additional dimension level combination"). See Specification page 13, line through page 14, line 14.

In the preferred embodiment, this is accomplished by rewriting a dimension table which affects interpretation of a dimension level (column) in the Fact Table in such a way as to meet the subject criteria. In the Fig. 6 example, the "location" Dimension Table 604 corresponds to Fact Table 602 dimension level "City" and is rewritten so that "Berkeley" (City attribute) includes "Alameda County" as shown in resulting Dimension Table 704 of Fig. 7. See Specification page 14, line 15 through page 16, line 7.

In contrast, U.S. Patent No. 6,542,895 to DeKimpe et al. discloses handling of restructure performance of an overall database system due to deletion or addition of dimensions and/or dimension members from the underlying data set. The present invention is not directed to such deletion or addition of dimensions (modification to the underlying data set of the database) but rather to adjusting or rearranging aggregation and view (realization) of the exiting database data. See Specification page 2, line 28 through line page 3, line 4 of the instant application.

In an analogy to DeKimpe et al., Fact Table 402...,422 and corresponding Dimension Tables 414, 416, 418 (of DeKimpe et al. Fig. 4) are synonymous to Fact Table 602 and corresponding Dimension Tables 603, 604 respectively of the present application Fig. 6 (the "dimension structure" of Claim 1). Fact Table 402...422 each have dimension levels (columns) of time 414 (404, 424), product 416 (406, 426) and measures (418) formed of dimension members Sales (408, 428), Costs (410,430) and Profits (412, 432). A normal criterion initially satisfied by some but not all rows ("dimension level combinations") is for example, Profits > 500. DeKimpe et al. does not provide a means for editing the "dimension structure" (Fact Table 402...,422 and corresponding Dimension Tables of Time 414, Products 416 and measures 418) so that the criterion (e.g., Profits > 500) is satisfied by at least one additional row ("dimension level combination") in Fact Table 402...,422.

In order to emphasize the foregoing patentable distinction of the present invention over the cited reference, base Claims 1 and 8 are now amended to recite that the "dimension structure" claim term refers to the modeling or representation of the data cube and not the underlying data set to which DeKimpe et al. is directed. Support for these claim amendments is found at least on

page 6 of the Specification as originally filed. No new matter is introduced. Acceptance is respectfully requested.

Claims 2-5 depend from Claim 1 and Claims 9-12 depend from base Claim 8. Thus these dependent claims inherit the distinguishing claim language from respective base Claims 1 and 8. Thus the invention of Claims 1-5 and 8-12 as now amended is not believed to be anticipated by DeKimpe et al. and is thus believed to be patentable over the cited and prior art. Withdrawal of the § 102(e) rejection is thus respectfully requested.

Claims 6-7 and 13-14 have been objected to as being dependent upon a rejected base claim but are said to be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. New Claims 15-18 effectively rewrite the objected claims in independent form, including all of the limitations of the base claim and any intervening claims. Acceptance is respectfully requested. No new matter has been introduced.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

By Mary Lou Wakimura
Mary Lou Wakimura
Registration No. 31,804
Telephone: (978) 341-0036
Facsimile: (978) 341-0136

Concord, MA 01742-9133

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